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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,783	03/09/2004	Hiroyasu Inoue	1324.70004	1676

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EXAMINER

QI, ZHI QIANG

ART UNIT PAPER NUMBER

2871

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/796,783

Applicant(s)

INOUE ET AL.

Examiner

Mike Qi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 14-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14 and 16-18 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 14 and 16-18 rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,306,469 B1 (Serbutoviez et al) in view of US 5,969,781 (Matsuyama et al).

Regarding claim 14, Serbutoviez teaches (col.1, lines 15-46) that using a mixture such as a liquid crystalline material mixed with a reactive monomer as the liquid crystal layer to form the liquid crystal display panel so as to seal such material between the two substrates, and then polymerizing this layer. Because the liquid crystal display molecules having different pre-tilt angle in any liquid crystal cell, so that polymerizing the reactive monomer to impart a different pre-tilt angle to the liquid crystal molecules in part of the pixel region.

Serbutoviez does not explicitly teach that the speed of response of a liquid crystal in a liquid crystal panel varies depending on part of the pixel region so that the tiling utilizing difference in the speed of response of the liquid crystal; and having a different threshold voltage in part of each pixel region.

Matsuyama teaches (col.4, line 56 - col.5, line 10; Fig.6B) that the tilting liquid crystal molecules in part of a pixel region (15) of the liquid crystal panel varies depending on part of the pixel region such as the liquid crystal molecules (3a, 3b), and

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such tilt rapidly so that the display having rapid response (high speed of response), such that the speed of response of a liquid crystal varies depending on part of a pixel region and the tilting utilizing the difference in the speed of response of the liquid crystal. As a general available knowledge, small tilt angle would have higher speed response, and the different tilting areas having different driving threshold voltage. Such that forming such different tilting area would obtain different domain and widen the viewing angle. Matsuyama indicates (col.4, line 56 – col.5, line10) that such tilting within the pixel region (15) reduces view angle dependency so as to insure a desirable view angle characteristic.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the liquid crystal display manufacturing method of Serbutoviez with the teachings of tilting the liquid crystal molecules varies (the difference of the speed response) as taught by Matsuyama, since the skilled in the art would be motivated for achieving a desirable view angle characteristic (col.4, line 56 – col.5, line10).

Regarding claims 16-18, Serbutoviez teaches the invention set forth above except for the liquid crystal display panel having an area with different cell thickness, different initial pre-tilt angle and different electric field direction.

Matsuyama teaches (col.4, line 56 - col.5, line 10; Fig.6B) that in part of the pixel region (15) having an area with different cell thickness (as shown in Fig.6), with different initial pre-tilt angle such as the molecules (3a, 3b), and with different electric field direction such as (E1, E3), and such tilting within the pixel region (15) reduces view

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angle dependency so as to insure a desirable view angle characteristic (col.4, line 56 – col.5, line10).

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the liquid crystal display manufacturing method of Serbutoviez with the teachings of having an area with different cell thickness, different initial pre-tilt angle and different electric field direction as taught by Matsuyama, since the skilled in the art would be motivated for achieving a desirable view angle characteristic (col.4, line 56 – col.5, line10).

***Allowable Subject Matter***

3. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither anticipated nor rendered obvious that a liquid crystal manufacturing method comprises various steps, more specifically, as the following:

tilting the liquid crystal molecules in part of the pixel region comprises a step of applying a predetermine voltage that is a repetition of a high voltage and a low voltage to the liquid crystal at a frequency determined base on the speed of response [claim 15, as shown in Fig.34]

The reference such as Matsuyama shows (Fig.6B) a different tilt angle in part of a pixel region so as to reduce the view angle dependency. However, the prior art of record do not show that the tilting the liquid crystal molecules in part of the pixel region comprises a step of applying a predetermine voltage that is a repetition of a high voltage and a low voltage to the liquid crystal at a frequency determined base on the speed of response as claimed.

### ***Response to Arguments***

5. Applicant's arguments filed on May 30, 2006 have been fully considered but they are not persuasive.

The tilting liquid crystal molecules affect the speed of response of a liquid crystal display panel. Such as a small tilting angle with respect to the vertical direction (vertical aligned liquid crystal molecules) would have a higher speed of response. Therefore, utilizing the difference in the speed of response (the speed of response of a liquid crystal varies) that would have a same effect as the tilting difference or tilting varies. Therefore, the reference Serbutoviez combined with the reference Matsuyama read the limitations as claimed in claim 14.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299. The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Mike Qi  
Aug.3, 2006

  
ANDREW SCHECHTER  
PRIMARY EXAMINER